

$\text{Cu}(\text{O}_3\text{SCF}_3)_2$ ,  $\text{CoCl}_2$ ,  $\text{CoI}_2$ ,  $\text{FeI}_2$ ,  $\text{FeCl}_3$ ,  $\text{FeCl}_2(\text{tetrahydrofuran})_2$ ,  $\text{FeCl}_2$ ,  $\text{TiCl}_4(\text{tetrahydrofuran})_2$ ,  $\text{TiCl}_4$ ,  $\text{TiCl}_3$ ,  $\text{ClTi}(\text{OiPr})_3$ ,  $\text{MnCl}_2$ ,  $\text{ScCl}_3$ ,  $\text{AlCl}_3$ ,  $(\text{C}_8\text{H}_{17})\text{AlCl}_2$ ,  $(\text{C}_8\text{H}_{17})_2\text{AlCl}$ ,  $(\text{iso-C}_4\text{H}_9)_2\text{AlCl}$ ,  $(\text{phenyl})_2\text{AlCl}$ ,  $\text{phenylAlCl}_2$ ,  $\text{ReCl}_5$ ,  $\text{ZrCl}_4$ ,  $\text{NbCl}_5$ ,  $\text{VCl}_3$ ,  $\text{CrCl}_2$ ,  $\text{MoCl}_5$ ,  $\text{YCl}_3$ ,  $\text{CdCl}_2$ ,  $\text{LaCl}_3$ ,  $\text{Er}(\text{O}_3\text{SCF}_3)_3$ ,  $\text{Yb}(\text{O}_2\text{CCF}_3)_3$ ,  $\text{SmCl}_3$ ,  $\text{TaCl}_5$ ,  $\text{CdCl}_2$ ,  $\text{B}(\text{C}_6\text{H}_5)_3$ , and  $(\text{C}_6\text{H}_5)_3\text{SnX}$ , and combinations of two or more thereof; and X is selected from the group consisting of  $\text{CF}_3\text{SO}_3$ ,  $\text{CH}_3\text{C}_6\text{H}_5\text{SO}_3$ ,  $(\text{C}_6\text{H}_5)_3\text{BCN}$ , and combinations of two or more thereof.

62. (New) A composition according to Claim 61 wherein said Lewis acid is selected from the group consisting of zinc chloride, cadmium chloride, iron chloride, triphenylboron,  $(\text{C}_6\text{H}_5)_3\text{SnX}$ , and combinations of two or more thereof; and X is selected from the group consisting of  $\text{CF}_3\text{SO}_3$ ,  $\text{CH}_3\text{C}_6\text{H}_5\text{SO}_3$ ,  $(\text{C}_6\text{H}_5)_3\text{BCN}$ , and combinations of two or more thereof.

#### REMARKS

By this preliminary amendment, the specification acknowledges that the present application is a divisional of a previously filed application, in which claims 1-10 and 22-33 were allowed.

Applicants have amended certain claims, and have added new claims 50 to 62. Applicant has amended claims to place multiple dependent claims in proper form. Support for the amended and new claims appears in the specification. No new matter is added by this amendment.

Pending are claims 11-21 and 34-49 and upon entry of this amendment, claims 50-62. It is respectfully requested that the preliminary amendment filed herewith be entered before examination of the pending claims.

Respectfully submitted,

*Chyrrea J. Sebree*

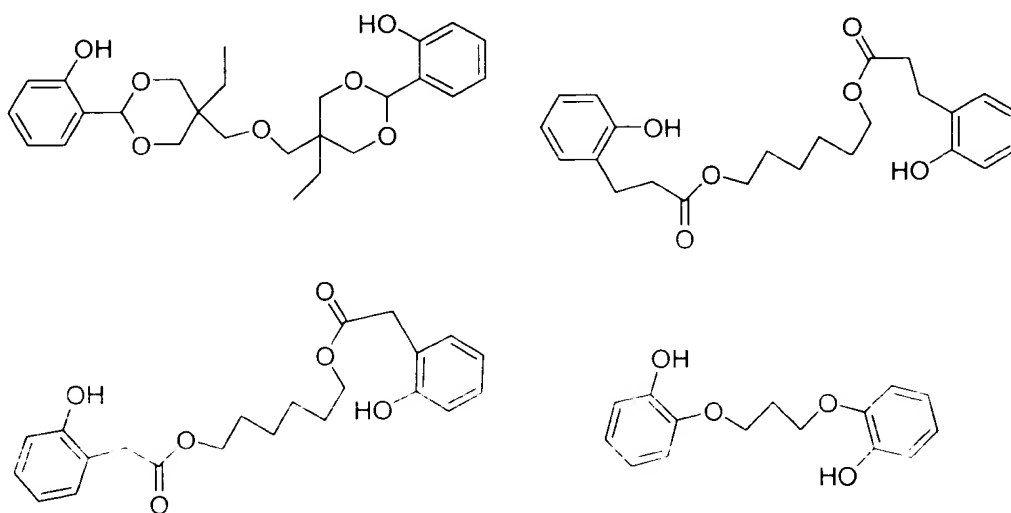
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Dated: \_\_\_\_\_

**MARKED-UP VERSION**

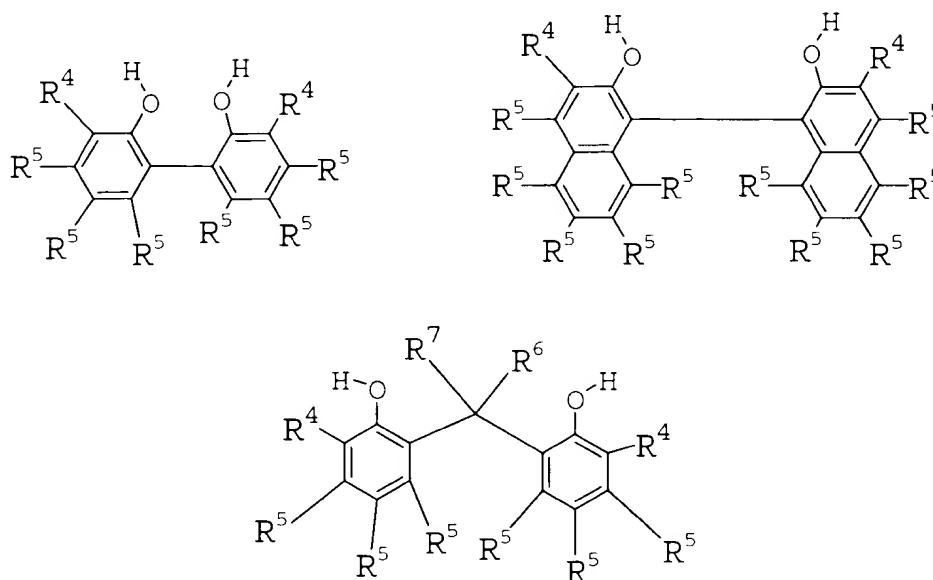
14. (Once amended) A composition according to Claim 13 wherein said polyhydric alcohol is selected from the group consisting of  $(\text{OH})_m(\text{R}^4)\text{Ar}^1\text{-Ar}^1(\text{R}^4)(\text{OH})_m$  and  $(\text{OH})_m(\text{R}^4)\text{Ar}^1\text{-A}^1\text{-Ar}^1(\text{R}^4)(\text{OH})_m$   $(\text{OH})_m\text{Ar}^1\text{-R}^4\text{-R}^4\text{-Ar}^1(\text{OH})_m$  and  $(\text{OH})_m\text{Ar}^1\text{-R}^4\text{-A}^1\text{-R}^4\text{-Ar}^1(\text{OH})_m$ ;  $\text{Ar}^1$  and  $\text{A}^1$  are the same as recited in Claim 13; and each  $\text{R}^4$  is independently selected from the group consisting of  $\text{C}_1$  to  $\text{C}_{12}$  alkyl or cycloalkyl group, acetal, ketal,  $-\text{OR}^3$ ,  $-\text{CO}_2\text{R}^3$ ,  $\text{C}_6$  to  $\text{C}_{20}$  aryl group,  $-\text{SiR}^3$ ,  $-\text{SO}_3\text{R}^3$ ,  $-\text{S}(\text{O})\text{R}^3$ ,  $-\text{S}(\text{O})_2\text{R}^3$ , perhaloalkyl,  $-\text{C}(\text{O})\text{N}(\text{R}^3)(\text{R}^3)$ ,  $-\text{A}^1\text{CO}_2\text{R}^3$ ,  $-\text{A}^1\text{OR}^3$  and combinations of two or more thereof.

16. (Once amended) A composition according to Claim ~~13, 14, or~~ 15 said polyhydric alcohol is selected from the group consisting of 6,6'-dihydroxy-4,4',7,7,7'-hexamethyl bis-2,2'-spirochroman, 2,2'-diallylbisphenolA, bisphenol A, 4,4'-(1-methylethylidene)bis(2-(1-methylpropyl)phenol), 4,4'-thiophenol, 4,4'-dihydroxydiphenylsulfone, 4,4'-sulfonylbis(2-methylphenol), bis(4-hydroxy-3-methylphenyl)sulfide, 2,2'-dis(4-hydroxy-3-methylphenyl)propane, 4,4'-ethylidenebis(2,5-dimethylphenol), 4,4'-propylidenebis(2,5-dimethylphenol), 4,4'-benzylidenebis(2,5-dimethylphenol), 4,4'-ethylidenebis(2-isopropyl-5-methylphenol),



and combinations of two or more thereof.

17. (Once amended) A composition according to ~~any of Claims 11 to~~ 16 wherein said aromatic diol has the formula selected from the group consisting of



and combinations of two or more thereof;

each  $R^4$  is independently selected from the group consisting of hydrogen,  $C_1$  to  $C_{12}$  alkyl or cycloalkyl group, acetal, ketal,  $-OR^3$ ,  $-CO_2R^3$ ,  $C_6$  to  $C_{20}$  aryl group,  $-SiR^3$ ,  $-NO_2$ ,  $-SO_3R^3$ ,  $-S(O)R^3$ ,  $-S(O)_2R^3$ ,  $-CHO$ ,  $-C(O)R^3$ ,  $-F$ ,  $-Cl$ ,  $-CN$ ,

$-CF_3$ ,  $-C(O)N(R^3)(R^3)$ ,  $-A^1Z$ , and combinations of two or more thereof;

$Z$  is selected from the group consisting of  $-CO_2R^3$ ,  $-CHO$ ,  $-C(O)R^3$ ,  $-C(O)SR^3$ ,  $-SR^3$ ,  $-C(O)NR^1R^1$ ,  $-OC(O)R^3$ ,  $-OC(O)OR^3$ ,  $-N=CR^1R^1$ ,  $-C(R^1)=NR^1$ ,  $-C(R^1)=N-O-R^1$ ,  $-P(O)(OR^3)(OR^3)$ ,  $-S(O)_2R^3$ ,  $-S(O)R^3$ ,  $-C(O)OC(O)R^3$ ,  $-NR^3CO_2R^3$ ,  $-NR^3C(O)NR^1R^1$ ,  $F$ ,  $Cl$ ,  $-NO_2$ ,  $-SO_3R^3$ ,  $-CN$ , and combinations of two or more thereof;

each  $R^3$  is independently selected from the group consisting of  $C_1$  to  $C_{12}$  alkyl or cycloalkyl group,  $C_6$  to  $C_{20}$  aryl group, and combinations of two or more thereof;

each  $R^5$  is independently selected from the group consisting of  $H$ ,  $F$ ,  $Cl$ ,  $C_1$  to  $C_{12}$  alkyl,  $C_1$  to  $C_{12}$  cycloalkyl,  $C_6$  to  $C_{20}$  aryl,  $-OR^3$ ,  $-CO_2R^3$ ,  $-C(O)R^3$ ,  $-CHO$ ,  $-CN$ ,  $-CF_3$ , and combinations of two or more thereof;

each  $R^6$  independently is selected from the group consisting of  $H$ ,  $C_1$  to  $C_{12}$  alkyl,  $C_1$  to  $C_{12}$  cycloalkyl,  $C_6$  to  $C_{20}$  aryl, and combinations of two or more thereof;  
and

each  $R^7$  independently is selected from the group consisting of  $H$ ,  $C_1$  to  $C_{12}$  alkyl,  $C_1$  to  $C_{12}$  cycloalkyl,  $C_6$  to  $C_{20}$  aryl, and combinations of two or more thereof.

18. (Once amended) A composition according to ~~any of Claims 1 to 17~~ further comprising at least one Group VIII metal selected from the group consisting of nickel, palladium, cobalt, and combinations of two or ~~more~~ more thereof.

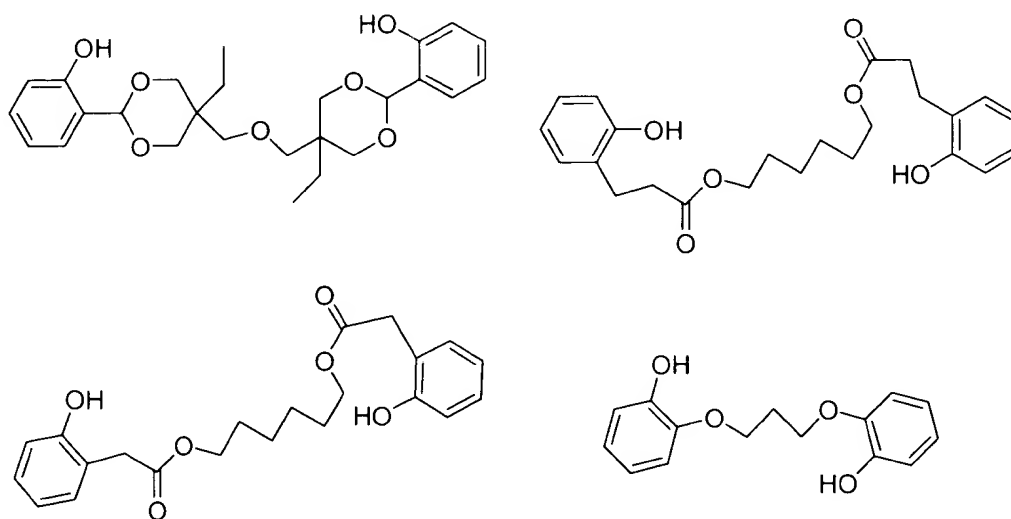
38. (Once amended) A process according to Claim 36 wherein  
said polyhydric alcohol is selected from the group consisting of  $(OH)_m$   
 $(R^4)Ar^1-Ar^1(R^4)(OH)_m$  and  $(OH)_m(R^4)Ar^1-A^1-Ar^1(R^4)(OH)_m$   ~~$(OH)_mAr^1-R^4-R^4-Ar^1(OH)_m$  and  $(OH)_mAr^1-R^4-A^1-R^4-Ar^1(OH)_m$~~ ;

$Ar^1$  and  $A^1$  are the same as recited in Claim 14; and

each  $R^4$  is independently selected from the group consisting of  $C_1$  to  $C_{12}$  alkyl or cycloalkyl group, acetal, ketal,  $-OR^3$ ,  $-CO_2R^3$ ,  $C_1$  to  $C_{20}$  aryl group,  $-SiR^3$ ,  $-SO_3R^3$ ,  $-S(O)R^3$ ,  $-S(O)_2R^3$ , perhaloalkyl,  $-C(O)N(R^3)(R^3)$ ,  $-A^1CO_2R^3$ ,  $-A^1OR^3$  and combinations of two or more thereof.

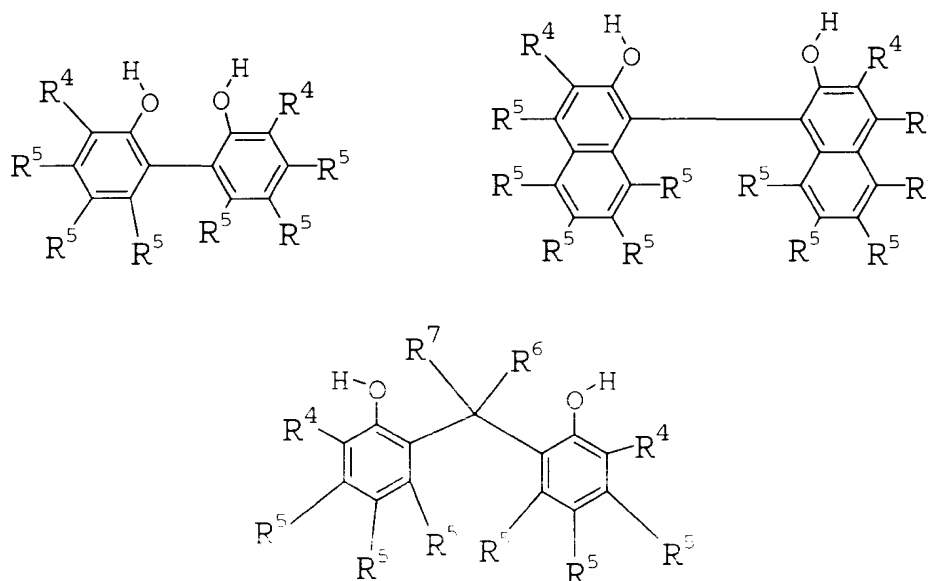
39. (Once amended) A process according to Claim ~~37 or~~ 38 wherein the location of the OH groups of said polyhydric alcohol are placed such that, when said polyhydric alcohol is contacted with  $PCl_3$ , monodentate phosphites are not predominately produced.

40. (Once amended) A process according to Claim ~~37, 38, or~~ 39 wherein said polyhydric alcohol is selected from the group consisting of 6,6'-dihydroxy-4,4,4',7,7,7'-hexamethyl bis-2,2'-spirochroman, 2,2'-diallylbisphenolA, bisphenol A, 4,4'-(1-methylethylidene)bis(2-(1-methylpropyl)phenol), 4,4'-thiophenol, 4,4'-dihydroxydiphenylsulfone, 4,4'-sulfonylbis(2-methylphenol), bis(4-hydroxy-3-methylphenyl)sulfide, 2,2'-dis(4-hydroxy-3-methylphenyl)propane, 4,4'-ethylidenebis(2,5-dimethylphenol), 4,4'-propylidenebis(2,5-dimethylphenol), 4,4'-benzylidenebis(2,5-dimethylphenol), 4,4'-ethylidenebis(2-isopropyl-5-methylphenol).



and combinations of two or more thereof.

41. (Once amended) A process according to ~~any of~~ Claims 34 or 40 35 wherein said aromatic diol has the formula selected from the group consisting of



and combinations of two or more thereof;

each  $R^4$  is independently selected from the group consisting of hydrogen,  $C_1$  to  $C_{12}$  alkyl group,  $C_1$  to  $C_{12}$  cycloalkyl group, acetal, ketal,  $-OR^3$ ,  $-CO_2R^3$ ,  $C_1$  to  $C_{20}$  aryl group,  $-SiR^3$ ,  $-NO_2$ ,  $-SO_3R^3$ ,  $-S(O)R^3$ ,  $-S(O)_2R^3$ ,  $-CHO$ ,  $-C(O)R^3$ ,  $-F$ ,  $-Cl$ ,  $-CN$ ,  $-CF_3$ ,  $-C(O)N(R^3)(R^3)$ ,  $-A^1Z$ , and combinations of two or more thereof;

$Z$  is selected from the group consisting of  $-CO_2R^3$ ,  $-CHO$ ,  $-C(O)R^3$ ,

$-\text{C}(\text{O})\text{SR}^3$ ,  $-\text{SR}^3$ ,  $-\text{C}(\text{O})\text{NR}^1\text{R}^1$ ,  $-\text{OC}(\text{O})\text{R}^3$ ,  $-\text{OC}(\text{O})\text{OR}^3$ ,  $-\text{N}=\text{CR}^1\text{R}^1$ ,  $-\text{C}(\text{R}^1)=\text{NR}^1$ ,

$-\text{C}(\text{R}^1)=\text{N}-\text{O}-\text{R}^1$ ,  $-\text{P}(\text{O})(\text{OR}^3)(\text{OR}^3)$ ,  $-\text{S}(\text{O})_2\text{R}^3$ ,  $-\text{S}(\text{O})\text{R}^3$ ,  $-\text{C}(\text{O})\text{OC}(\text{O})\text{R}^3$ ,  $-\text{NR}^3\text{CO}_2\text{R}^3$ ,  $-\text{NR}^3\text{C}(\text{O})\text{NR}^1\text{R}^1$ , F, Cl,  $-\text{NO}_2$ ,  $-\text{SO}_3\text{R}^3$ ,  $-\text{CN}$ , and combinations of two or more thereof;

each  $\text{R}^3$  is independently selected from the group consisting of  $\text{C}_1$  to  $\text{C}_{12}$  alkyl or cycloalkyl group,  $\text{C}_1$  to  $\text{C}_{20}$  aryl group, and combinations of two or more thereof;

each  $\text{R}^5$  is independently selected from the group consisting of H, F, Cl,  $\text{C}_1$  to  $\text{C}_{12}$  alkyl or cycloalkyl,  $\text{C}_6$  to  $\text{C}_{20}$  aryl,  $-\text{OR}^3$ ,  $-\text{CO}_2\text{R}^3$ ,  $-\text{C}(\text{O})\text{R}^3$ ,  $-\text{CHO}$ ,  $-\text{CN}$ ,  $-\text{CF}_3$ , and combinations of two or more thereof;

each  $\text{R}^6$  independently is selected from the group consisting of H,  $\text{C}_1$  to  $\text{C}_{12}$  alkyl or cycloalkyl,  $\text{C}_6$  to  $\text{C}_{20}$  aryl, and combinations of two or more thereof; and

each  $\text{R}^7$  independently is selected from the group consisting of H,  $\text{C}_1$  to  $\text{C}_{12}$  alkyl or cycloalkyl,  $\text{C}_6$  to  $\text{C}_{20}$  aryl, and combinations of two or more thereof.

45. (Once amended) A process comprising (a) contacting a diolefinic compound, in the presence of a catalyst composition, with a fluid comprising hydrogen cyanide to produce a 2-alkyl-3-monoalkenenitrile; and (b) contacting said 2-alkyl-3-monoalkenenitrile with said catalyst composition wherein said catalyst composition is the composition recited in claims 18-21.

48. (Once amended) A process comprising contacting a 2-alkyl-3-monoalkenenitrile with a catalyst composition wherein said catalyst composition is the composition recited in Claims 18-21.